CLAIMS

I/We claim:

1. A method for manufacturing a shaft-hub connection comprising the steps of:

chucking in a first working piece spindle a brake disk having a hub and an aperture therein;

chucking in a second working piece spindle a drive shaft having a bell and a catching portion adapted to extend into the aperture;

green machining via turning the brake disk;

green machining via turning the drive shaft;

hardening the drive shaft;

final finishing via turning the brake disk;

final finishing via turning the drive shaft;

whereby final dimensions of the brake disk and drive shaft are respectively obtained in a single chucking action.

2. The method according to claim 1, characterized in that said green machining via turning of the brake disk includes machining of a brake body, including brake surfaces of the brake disk.

3. The method according to claim 1, characterized in that said green machining via turning of the drive shaft includes machining of the bell, a polygonal contour in a catching portion, bearing seats, and an end portion of the drive shaft including the turning of a thread onto the end portion.

4. The method according to claim 1 wherein said step of final finishing via turning of the brake disk includes the creation of the final dimensions of a polygonal inner contour of the aperture and bearing shoulders.

5. The method according to claim 1 wherein said step of final finishing via turning of the drive shaft includes the creation of the final dimensions of a polygonal outer contour of the catching portion and of bearing shoulders.

6. The method according to claim 1 comprising the steps of securing a first lathe tool in a first tool spindle, rotating the drive shaft about a rotational axis (X-X), and rotating the first lathe tool about a second rotational axis (Y-Y), whereby the rotational axis X-X is offset relative to the rotational axis Y-Y by a predetermined amount to generate a polygonal contour on the catching portion.

6. The method according to claim 6 comprising the step of using a second lathe tool to turn generally cylindrical outer contours of the drive shaft in the same chucking.

7. The method according to claim 1 comprising the steps of securing a first lathe tool in a first tool spindle, rotating the brake disk about a rotational axis (X-X), and rotating the first lathe tool about a second rotational axis (Y-Y), whereby the rotational axis X-X is offset relative to the rotational axis Y-Y by a predetermined amount to generate a polygonal contour in the aperture.

8. The method according to claim 7 comprising the step of using an additional lathe tool to turn generally cylindrical contours of the brake disk in the same chucking.

9. The method according to claim 7 further comprising machining the braking faces of said brake disk with a second lathe tool and creating the shoulders with a third tool, all in the same chucking.

10. The method according to claim 1 further comprising the step of providing finished products with a rated/actual value deviation amounting to less than 10 micrometers.

11. The method according to claim 1 further comprising the step of joining the brake disk and drive shaft together wherein the finished shaft-hub connection has a wobble smaller than 25 micrometers.